इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 3893 (1966): Slides for Direct Microscopic Count of Milk
[FAD 19: Dairy Products and Equipment]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN
IGNORANTIA JURIS NON EXCUSAT
PROTECTED BY COPYRIGHT

IS : 3893 - 1966
(Reaffirmed 2000)

Indian Standard

SPECIFICATION FOR SLIDES FOR DIRECT MICROSCOPIC COUNT OF MILK

(Second Reprint OCTOBER 1990)

UDC 637·127 : 576·8·093

© *Copyright* 1967

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 2 *February* 1967

Indian Standard

SPECIFICATION FOR SLIDES FOR DIRECT MICROSCOPIC COUNT OF MILK

Dairy Products and Laboratory Apparatus Sectional Committee, AFDC 34

Chairman	*Representing*
DR K. C. SEN	Indian Dairy Science Association, Bangalore
Members	
AGRICULTURAL MARKETING ADVISER TO THE GOVERNMENT OF INDIA	Directorate of Marketing and Inspection (Ministry of Food, Agriculture, Community Development & Co-operation), Nagpur
SHRI B. S. DANE (*Alternate*)	
SHRI B. R. BEDEKAR	Hindustan Milkfood Manufacturers' Ltd, Nabha
CHAIRMAN	Technical Standardization Committee (Foodstuffs) (Ministry of Food, Agriculture, Community Development & Co-operation)
SECRETARY (*Alternate*)	
SHRI M. R. CHANDRASEKHARA	Central Food Technological Research Institute (CSIR), Mysore
DR J. D. CONTRACTOR	Kaira District Co-operative Milk Producers' Union Ltd, Anand
DR I. M. PATEL (*Alternate*)	
DR N. N. DASTUR	Ministry of Food, Agriculture, Community Development & Co-operation
DEPUTY DAIRY DEVELOPMENT ADVISER (*Alternate*)	
DIRECTOR OF DAIRY RESEARCH	National Dairy Research Institute, Karnal
SHRI I. K. KAPOOR	Directorate General of Technical Development (Ministry of Supply, Technical Development & Materials Planning)
DR R. N. MATHUR	Central Scientific Instruments Organization (CSIR), Chandigarh
SHRI S. N. MITRA	Central Committee for Food Standards, Ministry of Health & Family Planning; *and* Central Food Laboratory, Calcutta
SHRI D. S. CHADHA (*Alternate*)	Central Committee for Food Standards (Ministry of Health & Family Planning)
SHRI B. P. PALKHIWALLA	Polson Limited, Bombay
SHRI L. V. DHRUVE (*Alternate*)	
SHRI F. J. RYAN	Nestle's Products (India) Ltd, New Delhi
DR M. K. K. IYENGAR (*Alternate*)	

(*Continued on page* 2)

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

(*Continued from page* 1)

Members	*Representing*
Dr L. C. Sikka	The Punjab Dairy Development Corporation Ltd, Chandigarh
Shri Gurbhagwant Singh Kalhon (*Alternate*)	
Representative	Dairy Development Commissioner, Government of Maharashtra
Representative	Directorate of Military Farms, Army Headquarters
Representative	Food Inspection Organization, Quartermaster General's Branch, Army Headquarters
Representative	Hindustan Lever Ltd, Bombay
Representative	Municipal Corporation, Bombay
Representative	National Physical Laboratory (CSIR), New Delhi
Dr Hari Bhagwan, Deputy Director (Agri & Food)	Director General, ISI (*Ex-officio Member*)

Secretary

Shri V. S. Mathur
Assistant Director (Agri & Food), ISI

Dairy Laboratory Apparatus and Glassware Subcommittee, AFDC 12 : 3*

Convener	
Dr N. N Dastur	National Dairy Research Institute, Karnal
Members	
Dr C. P. Anantakrishnan (*Alternate* to Dr N. N. Dastur)	
Shri C. V. Chandra Sekhar	T.T. (Private) Ltd, Bangalore
Shri S. S. Mani (*Alternate*)	
Dairy Development Commissioner	Dairy Development Commissioner, Maharashtra
Shri N. D. Kotnis (*Alternate*)	
Director	Central Scientific Instruments Organization (CSIR), Chandigarh
Dr A. T. Dudani	National Dairy Research Institute, Karnal
Dr S. R. Lele	Borosil Glass Works Ltd, Bombay
Shri B. P. Palkhiwalla	Polson Limited, Bombay
Shri L. V. Dhruve (*Alternate*)	
Shri Prem Prakash	National Physical Laboratory (CSIR), New Delhi
Shri H. W. Ramchandani	Larsen & Toubro Ltd, Bombay
Shri D. C. Roy	National Instruments Ltd, Calcutta
Shri J. K. Wad	All India Glass Manufacturers' Federation, New Delhi

---

*The draft standard for slides for direct microscopic count of milk was prepared by AFDC 12 : 3 and was approved for issuing in wide circulation by the Dairy Industry Sectional Committee, AFDC 12 on the recommendations of AFDC 12 : 3. At this stage, AFDC 12 was bifurcated into the Dairy Products and Laboratory Apparatus Sectional Committee, AFDC 34 and the Dairy Equipment Sectional Committee, AFDC 35. This subject fell under the purview of AFDC 34 and hence it has been finalized by it.

Indian Standard

SPECIFICATION FOR SLIDES FOR DIRECT MICROSCOPIC COUNT OF MILK

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 23 December 1966, after the draft finalized by the Dairy Products and Laboratory Apparatus Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 The need for a specification for slides for direct microscopic examination of milk has been felt by scientific workers and manufacturers of glassware. The direct microscopic count method prescribed in IS : 1479 (Part I)-1960* is commonly used as a rapid platform test for judging bacteriological quality of milk. The method consists of spreading 0·01 ml of milk sample over one square centimetre area on the glass slide, staining and counting of bacterial cells or clumps. This standard covers requirements for the one square centimetre slide commonly used in the microscopic examination of milk.

0.3 In the preparation of this standard, considerable assistance has been derived from ‘ Standard methods for the examination of dairy products (1960) ’ published by the American Public Health Association.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and methods of test for microscopic slides delineated with one square centimetre circular or square areas, used for direct microscopic count of milk.

---

*Methods of test for dairy industry : Part I Rapid examination of milk.

†Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 1382-1961* shall apply.

3. SIZE

3.1 Microscopic slides shall be of the following sizes:

a) 74 × 25 mm, with etched strips 6 mm wide and 5 circles or squares in a row;

b) 74 × 50 mm, with 5 circles or squares each in 3 parallel rows; and

c) 112·5 × 50 mm, with 8 circles or squares each in 3 parallel rows.

4. REQUIREMENTS

4.1 A general pattern of the slides is illustrated in Fig. 1.

4.2 Material and Workmanship — Microscopic slides should be made of clear non-corrosive glass, highly resistant to attack by moisture and with refractive index of approximately 1·522 5. The glass should be free from stones, bubbles, pits, nicks, striae, cords, surface scratches and other visible defects.

4.2.1 *Limit of Alkalinity* — The slides shall conform to type 1 of glass when graded according to the method prescribed in IS : 2303-1963†. However, only 10 g of the material may be used for the test instead of 100 g.

4.3 Construction and Finish — The slides shall be approximately 1·5 cm thick. They shall be of uniform thickness with a flat surface with carefully ground and polished edges and rounded corners, and with or without bevel on the larger edge.

4.4 Delineation — The slides shall be delineated clearly on each side with transparent one square centimetre areas or circular one square centimetre areas (diameter 11·28 mm approximately). Circular areas are easier for spreading the milk and uniform drying of film. The remaining portions on the slide all round the marked areas shall be suitably etched or sand-blasted to give a fine matte surface for ease in pencil writing and for the identification of slides.

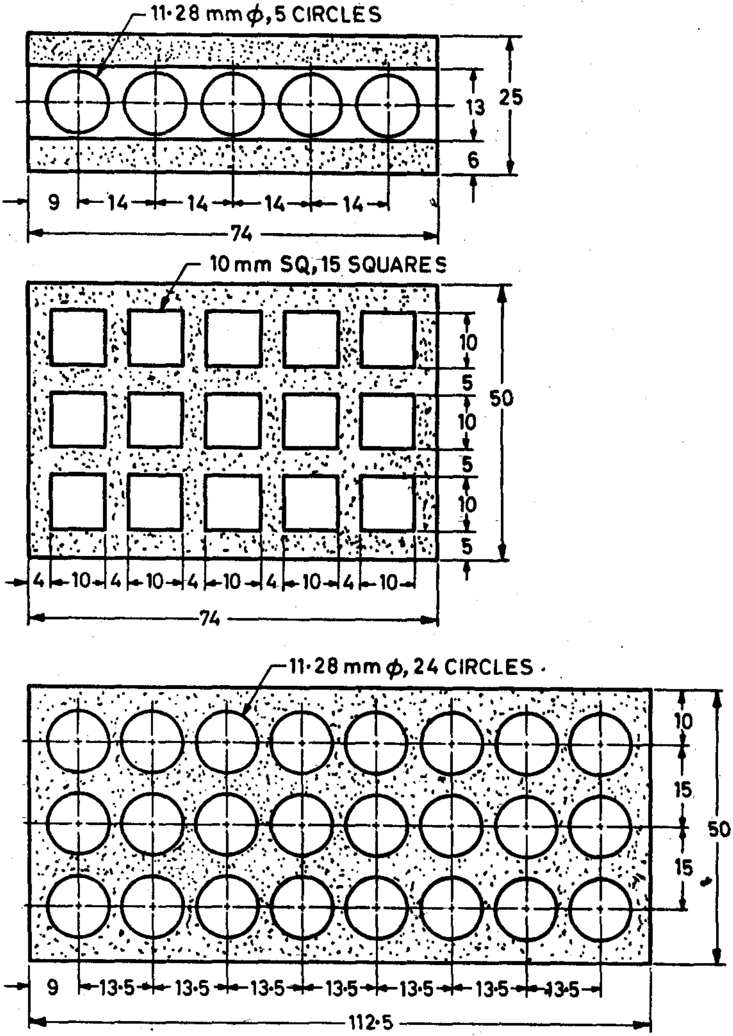
4.4.1 Tolerance permitted for one square centimetre area shall be ±1 percent.

NOTE — Circular areas facilitate rotary spreading. When a person is working at high speed, the natural tendency is to use a quick rotary motion which is not feasible with square areas. The square has to be carefully and painstakingly outlined and then the centre portion filled in. In the case of a square area, the tendency is to skip the corners and, in outlining the square, the line may waver resulting in approximation rather than a true square. On the contrary, while using the rotary spreading there are no troublesome corners to contend with and the resultant saving in time may help in taking greater care in making the slides. An additional saving in time occurs when the tip of syringe is used for spreading.

---

*Glossary of terms relating to glass industry.

†Methods of grading glass for alkalinity.



All dimensions in millimetres.

FIG. 1 SLIDES FOR DIRECT MICROSCOPIC COUNT OF MILK

5. MARKING AND PACKING

5.1 Marking — Each slide shall be permanently and legibly marked with the following information:

a) Manufacturer's name or registered trade-mark, if any;
b) Size; and
c) Batch or code number.

5.1.1 The slides may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5.2 Packing — In order to minimize the influence of heat and moisture on the slide during storage under tropical conditions, the following procedure should be followed in packing the slides.

5.2.1 The slides shall be packed with paper inserted between them and wrapped in kraft paper in convenient numbers and heated in a drying oven at 100°C for 1 to 1½ hours to drive off possible moisture. Each packet shall then be wrapped in waterproof cellophane, heat-sealed and enclosed in a carton of suitable size.

6. SAMPLING

6.1 Representative samples of the slides shall be drawn as prescribed in Appendix A.

APPENDIX A

(*Clause* 6.1)

SAMPLING OF SLIDES FOR DIRECT MICROSCOPIC COUNT OF MILK

A-1. SCALE OF SAMPLING

A-1.1 Lot — Slides of the same size and manufactured under essentially similar conditions shall constitute a lot.

A-1.2 Slides shall be selected andxafrn emedi om each lot separately for ascertaining their conformity to the requirements of the specification.

A-1.3 The number of cartons to be selected from a lot shall depend upon the number of cartons in the lot and shall be in accordance with col 1 and 2 of Table 1.

TABLE 1 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVES

(*Clauses* A-1.3, A-1.4, A-1.5, A-2.1 *and* A-2.2)

NUMBER OF CARTONS IN THE LOT (1)	NUMBER OF CARTONS TO BE SELECTED (2)	NUMBER OF SLIDES IN THE SAMPLE (3)	PERMISSIBLE NUMBER OF DEFECTIVES (4)	NUMBER OF DESTRUCTIVE TESTS FOR THE LIMIT OF ALKALINITY (5)
1	1	5	0	2
2	2	10	1	3
3 and 4	3	15	1	4
5 to 7	4	20	2	5
8 to 14	6	30	3	6
15 to 40	10	50	5	7
41 and above	16	80	7	8

A-1.4 In case the number of cartons in the lot is three or less, all the cartons shall be selected. If the number of cartons in the lot exceeds three, the number of cartons as given in col 2 of Table 1 shall be selected at random. To ensure the randomness of selection, a random number table as agreed to between the purchaser and the supplier shall be used.

A-1.5 All the cartons selected as in **A-1.4** shall be opened carefully and five slides shall be taken out at random from each of these cartons so as to give the number of slides in the sample as given in col 3 of Table 1. To ensure the randomness of selection of the slides, the following procedure shall be used:

> Starting from any slide in the carton, count all the slides as 1, 2, 3,...... up to r and so on, in one order, where r is equal to the integral part of $N/5$, N being the total number of slides in the carton. Every rth slide thus counted shall be withdrawn to constitute the sample.

A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 All the slides selected as in **A-1.5** shall be examined for all the requirements specified under **4** except for the limit of alkalinity (*see* **4.2.1**). Any slide failing to satisfy one or more of these requirements shall be regarded as defective. The lot shall be considered as conforming to these requirements if the number of defective slides does not exceed the permissible number of defectives given in col 4 of Table 1.

A-2.2 The lot, which has been found satisfactory in **A-2.1**, shall be examined for the limit of alkalinity (*see* **4.2.1**). For this purpose, a number of slides, which will give the amount of glass particles sufficient to carry out the number of tests as specified in col 5 of Table 1, shall be chosen at random from those already selected as in **A-1.5**. The lot shall be considered as conforming to the requirement of limit of alkalinity if the test result satisfies the relevant requirement for type 1 of glass.

BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 331 01 31
331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices :

		Telephone
Central	: Manak Bhavan, 9, Bahadur Shah Zafar Marg, NEW DELHI 110002	331 01 31 331 13 75
* Eastern	: 1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola, CALCUTTA 700054	37 86 62
Northern	: SCO 445-446, Sector 35-C, CHANDIGARH 160036	2 18 43
Southern	: C.I.T. Campus, IV Cross Road, MADRAS 600113	41 29 16
† Western	: Manakalaya, E9 MIDC, Marol, Andheri (East), BOMBAY 400093	6 32 92 95

Branch Offices :

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMADABAD 380001	2 63 48
‡ Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road, BANGALORE 560058	39 49 55
Gangotri Complex, 5th Floor, Bhadbhada Road, T.T. Nagar, BHOPAL 462003	55 40 21
Plot No. 82/83, Lewis Road, BHUBANESHWAR 751002	5 36 27
Kalai Kathir Building, 6/48-A Avanasi Road, COIMBATORE 641037	2 67 05
Quality Marking Centre, N.H. IV, N.I.T., FARIDABAD 121001	—
Savitri Complex, 116 G. T Road, GHAZIABAD 201001	8-71 19 96
53/5 Ward No. 29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003	3 31 77
5-8-56C L. N. Gupta Marg, (Nampally Station Road) HYDERABAD 500001	23 10 83
R14 Yudhister Marg, C Scheme, JAIPUR 302005	6 34 71
117/418 B Sarvodaya Nagar, KANPUR 208005	21 68 76
Plot No. A-9, House No. 561/63, Sindhu Nagar, Kanpur Road, LUCKNOW 226005	5 55 07
Patliputra Industrial Estate, PATNA 800013	6 23 05
District Industries Centre Complex, Bagh-e-Ali Maidan, SRINAGAR 190011	—
T. C. No. 14/1421, University P. O., Palayam, THIRUVANANTHAPURAM 695034	6 21 04

Inspection Offices (With Sale Point) :

Pushpanjali, First Floor, 205-A West High Court Road, Shankar Nagar Square, NAGPUR 440010	52 51 71
Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005	5 24 35

---

*Sales Office Calcutta is at 5 Chowringhee Approach, P. O. Princep Street, CALCUTTA	27 68 00
† Sales Office is at Novelty Chambers, Grant Road, BOMBAY	89 65 28
‡ Sales Office is at Unity Building, Narasimharaja Square, BANGALORE	22 39 71

Printed at Dee Kay Printers, New Delhi, India